Title: With Every Beat of My Heart

Brief Overview:

The teacher will discuss with the students the importance of identifying the fat content in their food. The teacher also will discuss the dangers of an excessively high fat diet. The students will take the responsibility for identifying high fat foods and substituting low fat foods for them.

Links to Standards:

- **Mathematics as Problem Solving**
  Students will demonstrate their ability to solve mathematical problems, including problems with open-ended answers and problems which are solved in a cooperative atmosphere**.**

- **Mathematics as Communication**
  Students will demonstrate their ability to communicate mathematically. They will read, write, and discuss mathematics with language and the signs, symbols, and terms of the discipline.

- **Mathematics as Reasoning**
  Students will demonstrate their ability to reason mathematically. They will make conjectures, gather evidence, and build arguments.

- **Mathematical Connections**
  Students will demonstrate the ability to connect mathematics, health, and language arts to a healthy lifestyle.

- **Estimation**
  Students will demonstrate their ability to apply estimation strategies in computation, with the use of technology, in measurement, and in problem solving. They will demonstrate the reasonableness of solutions and use calculators as appropriate.

- **Measurement/Fractions**
  Students will demonstrate their ability to estimate and verify measurements using fractions and percentages.

- **Statistics and Probability**
  Students will demonstrate their ability to collect, organize, and display data. Students will use appropriate displays such as line plots, pie charts and bar graphs.

Grade/Level:

Grades 4 and 5

Duration/Length:

Approximately 6 class periods, 45 minutes to 1 hour each.

Prerequisite Knowledge:

Students should have working knowledge of the following skills:

- Estimation
- Constructing fractions
- Classifying, organizing and analyzing data
- Comparing and contrasting
- Constructing bar graphs
- Functions of the heart
- Measurements
- Rounding
- Using a calculator

Objectives:

Students will:

- identify their favorite foods and estimate the percentage of the class likes each one.
- identify the federal guidelines for a healthy diet based on the food guide pyramid.
- calculate the percentage of fats found on their labels.
- convert fat grams to calories.
- substitute low fat items for high fat items.
- plan a menu.

Materials/Resources/Printed Materials:

- Index cards and containers
- Sentence strips
- Red and green markers
- Fat Guides/Fat Counters
- Calculator
- Student Resource Sheets
- Teacher Resource Sheets
- Food labels
- Post-its
- Low fat/Non fat cake (Optional)

Development/Procedures:

Day 1:

- Give each student a post-it and have them write their favorite food on it.
- Have the students place their selection on a line on the blackboard or place on the wall. Organize them in a graph format.
- Ask students to select the three most favorite foods in the class.
- Have students work in groups to make fractions of the top three foods.
- Present the vocabulary (SR1).

- Allow students time to copy these words and meanings in their vocabulary notebook.
- Read Eating Smart For Your heart to the class (TR1).
- Discuss with students the difference between good fats and bad fats. Explain the damage that bad fats can do to the heart.
- Allow students to work in groups and estimate the percentage of fats in their favorite foods.
- Use the fat guide to allow the students to find the approximate amount of fats in each.
- Require students to bring in a labels from one food item for the next class.

Day 2:

- Review good fats and bad fats.
- Have students work in groups and decide how much fat they should eat daily.
- Discuss different types of foods and have students estimate the amount that should be eaten daily.
- Show the class a picture of the food pyramid without the recommended servings. (SR3). Have students write in fractions how much of each they should eat each day.
- Show the class the food pyramid with the recommended servings listed (SR3B).
- Show students the picture of a plate showing what we eat. Have students predict what percentages of each we eat each day.(SR4)
- Show students a picture of a plate showing what we should eat.(SR5) Discuss the differences.
- Remind students to bring in labels from food items for the next class.

Day 3:

- Have the students read (SR6).
- Emphasize the importance of the bullets on this resource.
- Ask the students to high lite the ingredients sections.
- Emphasize the information that explains the importance of what ingredients are listed first to last.
- Have students read and complete SR7.
- Group students cooperatively to interpret the labels brought from home.
- Let students share group findings in an open discussion last 10 minutes of class.
- Emphasize student responses to #9 on SR7.

Day 4:

- Have the students play the "Where Do I Stand" game.(TR 2a & 2b).
- Place calorie cards in a basket.
- Have students select a partner.
- Have partners convert fat grams to calories and have students calculate percent of fat.
- Have other partner stand next to the red or green part of the line.
- Discuss with the children what it means to be in the (red) danger zone.
- Let children write a letter to a well known food chain, such as McDonalds on the importance of keeping fat levels in foods low.

Teacher Note: Index cards for this activity should be made prior to class.

Day 5:

- Have students evaluate the recipe for a cake (SR8) by determining the percentage of fat.
- Have students divide the fat calories by 10 to indicate that the cake was cut into 10 slices with one slice serving.
- Have students indicate substitutions of less fat ingredients on the menu, calculating the revision of the fat count.
- Have students compare the differences.
- Write the revised recipe on the board.
- (Optional) Bring in a non-fat cake for sampling.
- Have students taste samples.

Day 6:

- Review good fats and bad fats.
- Discuss with the students and brainstorm ways to create a healthy meal.
- Have students work in small groups making a list of their favorite food from each of the food groups.
- Let students use the fat guide to determine whether their choices are healthy or not.
- Challenge students to create a healthy menu using their favorite food from the food pyramid. **Note:** The student must pick one food item from each food group.
- Let the students share their menu with the class.
- Hang menus on bulletin board or around room to give students a chance to reflect later.

Performance Assessment:

- Teachers may use observation, a checklist, and anecdotal records to assess students as they complete the activities/tasks outlined in the learning unit.
- Use TR 2a as an assessment tool. Assess students' understanding of the percentages of fats, carbohydrates, and protein in the diet.

Extension/Follow Up:

- Compose/create a commercial
- Design heart healthy posters
- Cook a low fat meal
- Learning unit on the dangers of cholesterol.
- "Heart-Smart Eating" Cartoons

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KNOW YOUR FATS

Saturated Fat - The type of fat that increases blood cholesterol levels, it should be consumed only in small amounts. Animal foods such as meat, butter, and cheese are high in saturated fat.

Unsaturated Fats - Helps lower blood cholesterol along with a diet low in fat. Vegetable oils and fish are high in unsaturated fats.

Hydrogenated Fats - Vegetable oils that have been made more saturated. They are used to improve the texture and shelf life of foods. Stick margarine and vegetable shortening contain hydrogenated fats.

Cholesterol - A waxy, fat-like substance found only in animal foods. Our bodies also make cholesterol for use in cells and in hormone productions.

Nutrients - Substances found in food that help your body grow and develop.

Energy - The ability to do work. Your body's energy comes from food.

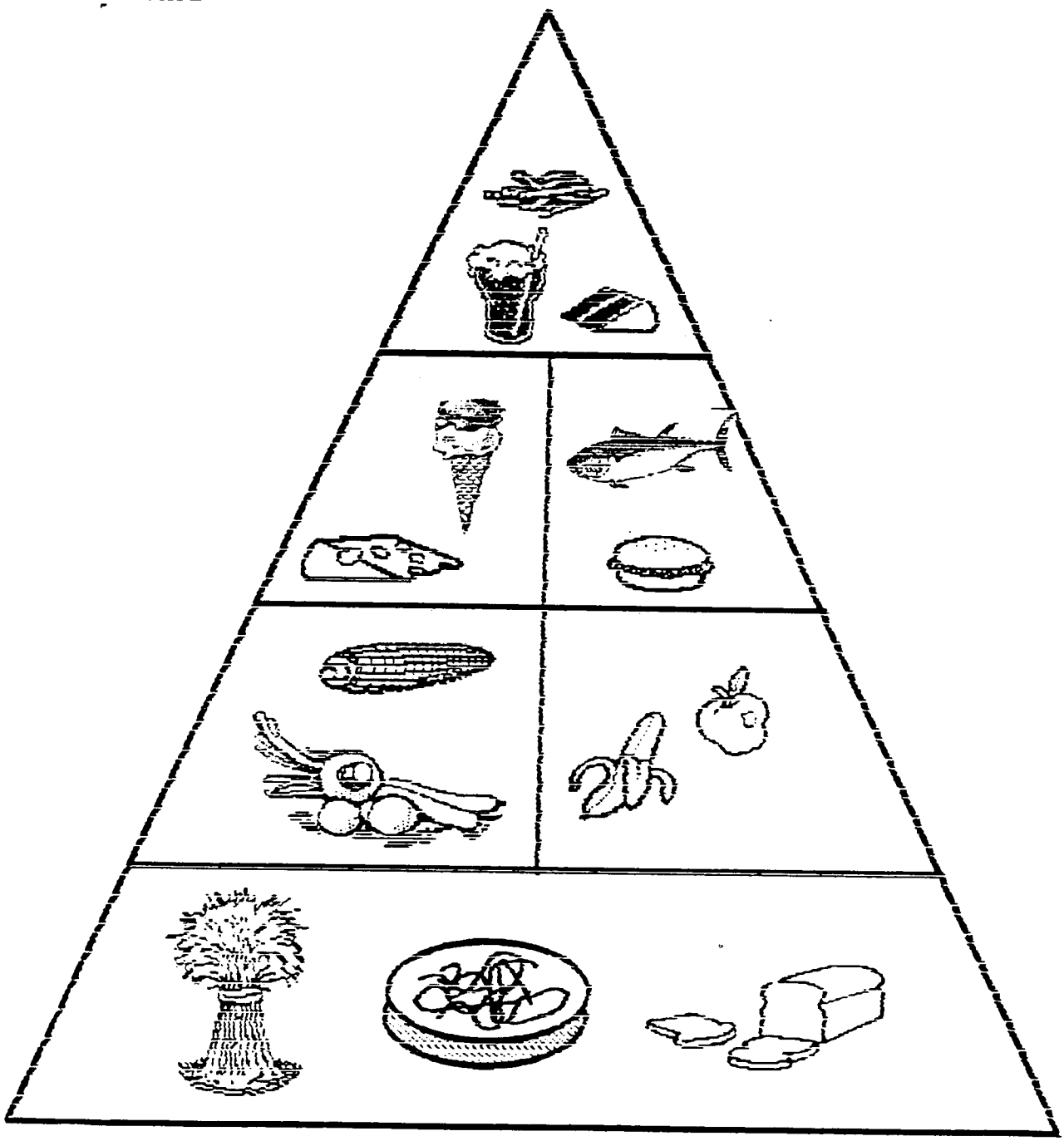
Carbohydrates - Foods which contain sugar and starch. Most of your energy comes from carbohydrate foods. Foods with natural sugar or starch in them are the best source of carbohydrates.

Protein - Kinds of organic compound which form the most essential part of the food of living creatures

Every Beat of My Heart

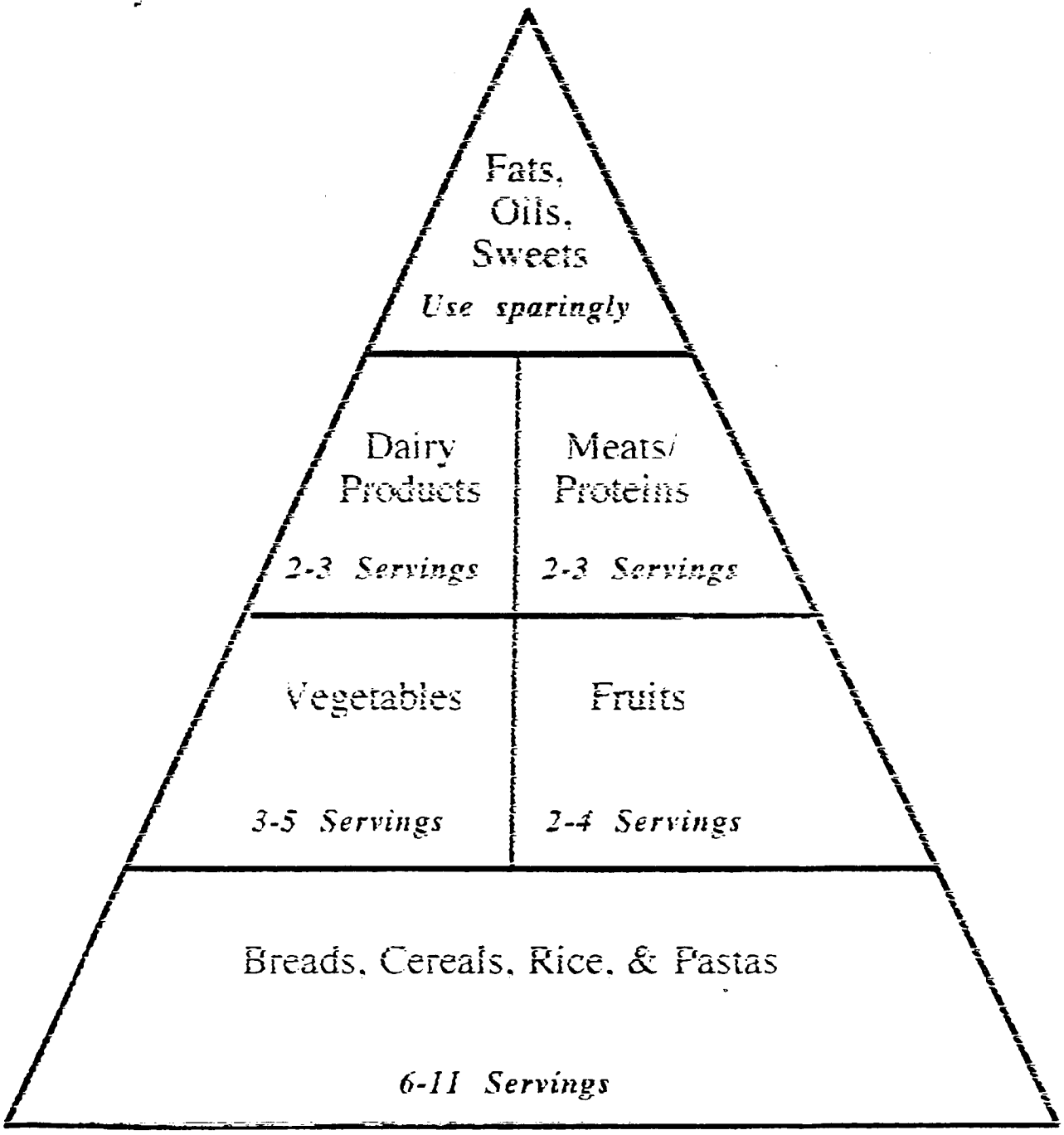
Student Resource Sheet 3

Food Pyramid

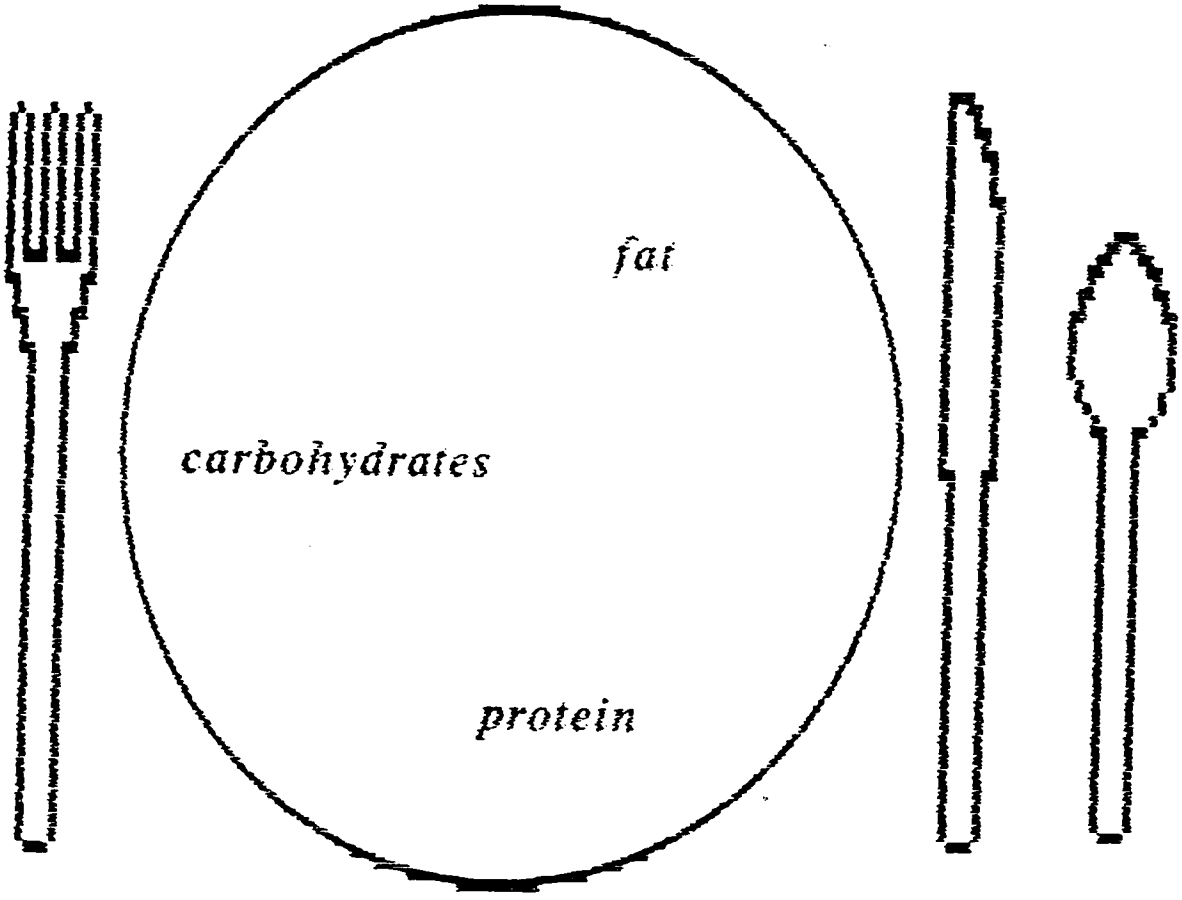


Every Beat of My Heart

Food Pyramid

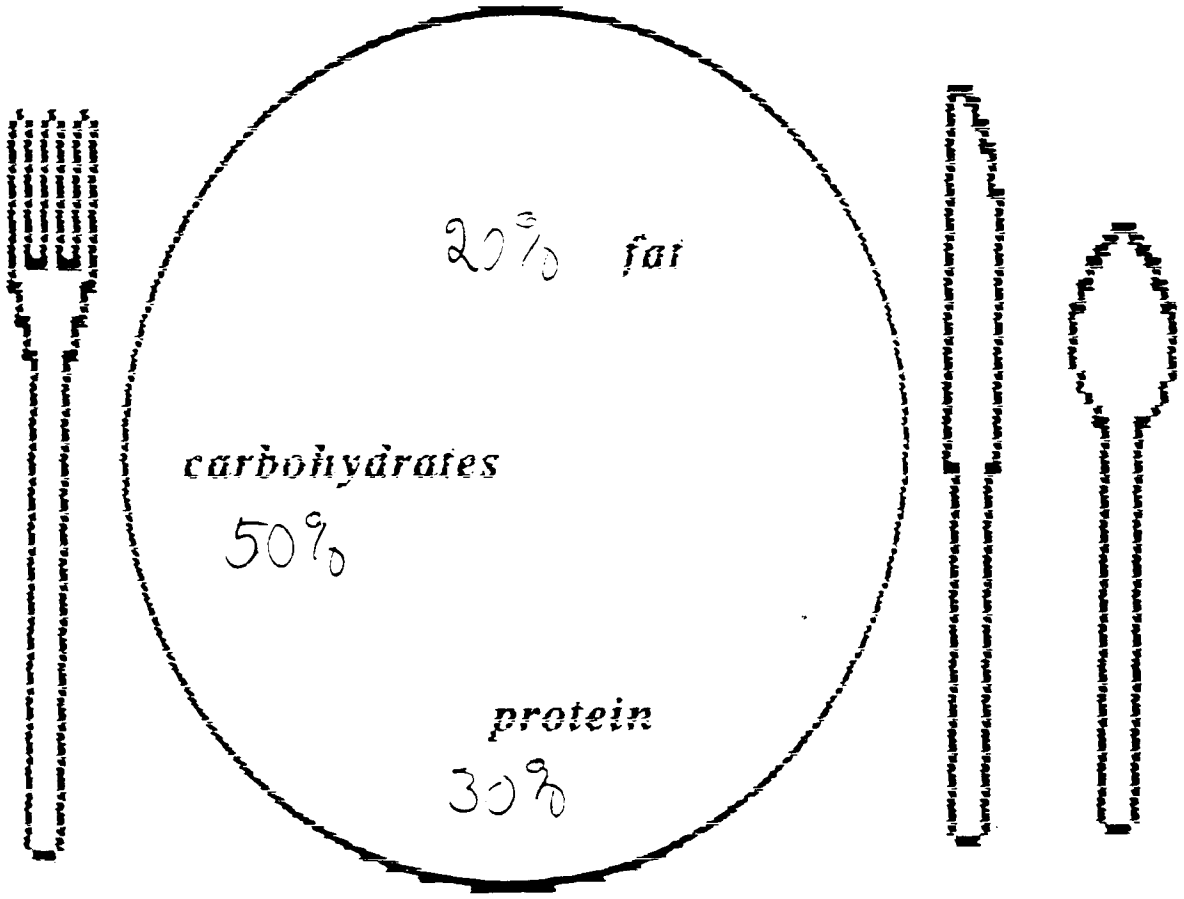


What We Eat



Every Beat of My Heart
Meal Percentages

What We Should Eat



You are a good shopper if you:

- Always read the label
- Check the number of servings
- Use nutrition labels to count calories and evaluate the nutrient content of food.

How To Read LABELS

Nutrition Information Per Serving

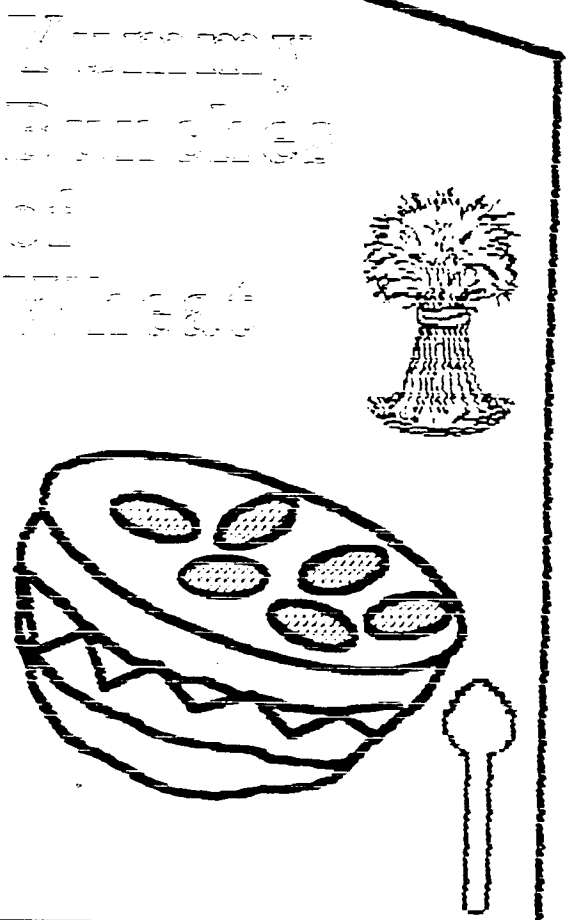
Serving size	1 cup
Servings per container	12
Calories	90
Carbohydrate	22 grams
Protein	3 grams
Fat	1 gram
Sodium	190 milligrams

Percentages of U.S. Recommended *Daily Allowances (U.S. RDA)*

Protein	4%	Vitamin D	10 %
Vitamin A	25%	Vitamin B6	25%
Vitamin C	*	Folic Acid	25%
Thiamine	25%	Vitamin B12	25%
Riboflavin	25%	Phosphorus	10%
Niacin	25%	Magnesium	10%
Calcium	*	Zinc	10%
Iron	25%	Copper	10%

* contains less than 2% of U.S. RDA of these nutrients

Ingredients: Whole Wheat, Wheat Bran, Sugar, Raisins, Dried Apples, Almonds, Natural Flavoring, Salt, Corn Syrup, Coconut Oil and Artificial Flavor. BHA added to packaging to preserve freshness.



This indicates that Yummy Bunches of Wheat consists largely of whole wheat, since it's listed first. Wheat bran and sugar are listed second and third in quantity. Artificial flavor is the ingredient that's present in the smallest quantity in Yummy Bunches of Wheat.

"Bulging Bertha's Cake"

Original Recipe	Fat Grams	Revised Recipe	Fat Grams
1/2 lb. of butter (8 tbsps)	_____	_____	_____
3 Tbsp of Crisco Oil	_____	_____	_____
6 eggs	_____	_____	_____
3 cups of sugar			
3 1/2 cups of flour			
1/2 cup of sweet milk	_____	_____	_____
lemon flavor			
vanilla flavor			
Total fat grams	_____	Total fat grams	_____
Total Calories	_____	Total Calories	_____
		Total Calorie Savings	_____

(If not self-rising flour, add 1/2 baking powder.)

Instructions:

Set oven to 325 degrees. Combine oil and butter in the mixing bowl. In a separate bowl, add eggs and beat until well blended. Add the eggs to butter and oil. Combine sugar and flour together and add to batter. Beat for about 6 minutes adding milk and flavoring gradually. Grease and flour cake pan. Pour cake mixture in pan and bake until done.

Teacher Resource #1

EATING SMART FOR YOUR HEART

Each kid should be taught to eat right for a healthy heart because Scientists say the start of heart disease begins in childhood. However, for energy, fat in our food provides more calories than an equal amount of anything else we eat. Also, fats help us absorb certain vitamins. Therefore, it is important to let your students know that we need some fat but they should know which fat is the GOOD fat. Some types of fats help to decrease blood cholesterol while fatty foods generally increase the amount of cholesterol in the blood. Fats that tend to raise the level of cholesterol in the blood are saturated fats. These fats harden at room temperature. Unfortunately, it is the most abundant fat in the foods that students love. Polysaturated fats are found in foods that come from plants. The third type, monounsaturated fat, is found in animal and plant foods. The good news about monounsaturated fats is that it has been known to lower blood cholesterol. Examples of these three types are listed below:

Saturated fat	Polyunsaturated fat	Monounsaturated fat
Lard	Tub margarine	Peanut butter
Stick margarine	Corn oil	Canola oil
Meats, poultry	Sunflower oil	Olive oil
Butter		
Fatty cuts of pork, beef, or lamb		
Cream and whole milk		
Ice Cream		
Cheese made from cream or whole milk		

CALORIES MUST BE COUNTED

The energy to fuel your body and keep your strength up is provided by the calories in your diet. Extra calories are stored as fat when you eat more calories than your physical activity burns off. Extra stress is put on your heart when you eat more than is needed and gain too much weight.

Fats have more than twice the number of calories as proteins and carbohydrates. Below is a list of foods that are concentrated sources of high fat calories.

Cheese	Fatty meats	Luncheon meats	Scrapple	Ribs	Salad dressing
Gravies	Sausage	Fried foods	Fatback	Sauces	Chocolate

BE AN INTELLIGENT LABEL DETECTIVE

Instructions: Evaluate the information on your label by answering the following questions:

1. What is the serving ? _____.
2. Is their extra fat or oil indicated on your label? _____ What kind? _____.
3. The first item in the ingredients list makes up about 60% of the product. What's listed first? _____
4. What's listed last?_____.
5. What is the total fat grams?_____.
6. Convert the fat grams to calories by multiplying by 9. _____.
7. Divide the # of TOTAL calories into the # of fat calories to get the % of fat. Write this number._____.
8. Convert protein grams and carbohydrate grams into calories by multiplying them by 4. Write the answers. Protein_____. Carbohydrates_____.
9. Divide the # of total calories into # of Protein calories to get the % of Protein. Write your answer_____.
10. Divide the # of total calories into the # of carbohydrate calories to get the % of Protein. Write the answer._____.
11. Draw a circle and indicate a comparison of % Protein and % carbohydrates by arranging rainbow cubes in your circle.
12. Would this product be considered a "Heart-Healthy" food? _____ Explain _____

Information for Index Cards Teacher Resource 2a

(Please note: Percentages are for your information only and are not to be included on the cards.)

"Where Do I Stand"

1. I ate at Grandma's house. My calories were 395 with 5 fat grams. Where do I stand? (11% --Green)

2. Little sister's cooking again. Supper is up to 500 calories. Fat grams are 50. Where do stand? (90% ---Red))

3. 300 calories. Fat grams are 10. Have I blown it? Where do I stand? (30% - - Border--Red/Green)

4. Eating late. I have so much homework. This is 600 calories with 15 fat grams. Where do I stand? (22%--Green)

5. Wow! To be treated to lunch on my birthday. 200 calories, 20 fat grams. Isn't this GREAT! Where do I stand? (90% -- Red)

6. Here we go again. I've got to make my own lunch. 60 calories, 5 fat grams. Where do I stand? (75% -- Red)

7. We swapped lunch. Now mine is 129 calories, 3 fat grams. Where do I stand? (27% -- Border Green)

8. I'm starving. I'm going to eat this, whatever it is. It's 135 calories and 7 fat grams. Where do I stand? (46% - Red)

9. We're best friends and I've made your lunch. It's 800 calories and 35 fat grams. Where do you stand? (39% -- Red)

10. I've eaten at Molly's house, Fred's house, and John's house. Total calories are 650 with only 19 fat calories. Where do I stand? (26% -- Border Green)

11. I ate just a little 90 calories, 2 fat grams. Where do I stand? (20% -- Green)

12. I must eat at aunt Harriett's house. Yuck! 94 calories, 3 fat grams. Where do I stand? (28%--Border - Green)

13. I ate all the food on my plate at the school cafeteria. Help!!! 527 calories, 7 fat grams. Where do I stand? ((11% - Green)

14. What a GREAT lunch. 325 calories, 2 fat grams. Where do I stand? (5% - Green)

15. I ate Brad's lunch that he fixed for tomorrow. Don't tell!! 1054 calories, 20 fat grams. Where do I stand? (17% - Green)

16. Well, it's about time you learned how to cook! 279 calories, 1 fat gram. (3% - Green)

Teacher Resource # 2b

Instructions for the game "Where do I stand?"

MATERIALS:

- Sentence strips (enough for 20 feet)
- Color markers
- Index cards
- basket (or other container)

PREPARATION:

Before class, teacher must copy information from Teacher Resource ____ on index cards.

Connect strips together to measure approx. 20 feet. Color 10 feet of strip green and the other 10 feet red.

Number strip with 0% at green end, 30% where red meets green, and 100% at red end.

Position strip on wall or floor where students may stand.

INSTRUCTIONS:

Explain that the green side of the line represents a healthy heart and the red side represents a heart headed for trouble.

Have students select a partner. One partner will choose a card from the basket.

Review with students how to change fat grams to calories. (Multiply fat grams by 9 then divide this number by the total calories.)

Have partners read the card, calculate the %, and write it on a sheet of paper. (Tell them to hold their answers until all have finished, about 5 minutes.)

Tell partners to choose who will stand by the line.

Instruct students that as you call on them, if their % is between 0-25, they must say "My healthy heart is as happy as can be!" If their % is between 26-30, they must say "My happy heart is not so happy!" If their % is 30 or more, they must say "Call the Doctor, I may be sick!"

Call on students randomly. Tell them to read their card. Remind them to make the appropriate statement as they come up to stand on or next to the line.

Use TR 2a as an assessment tool. Assess students' understanding of the percentages of fats, carbohydrates, and proteins in the diet.